"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

YEREMENKO, V.V.; POPKOV, Yu.A.; LITVINENKO, Yu.G.

Zeeman effect in the optical spectrum of antiferromagnetic $Mn F_2$ crystals. Zhur. eksp. i teor. fiz. 47 no.5:1733-1735 N '64.
(MIRA 18:2)

1. Fiziko-tekhnicheskiy institut nizkikh temperatur AN UrsSR.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

YEREMENKO, V.V. [IEremenko, V.V.]; POPKOV, Yu.A.

Magnetooptical study of crystals in high magnetic fields. Part 1. Pulse method. Ukr. fiz. zhur. 8 no.1:88-95 Ja '63. (MIRA 16:5)

1. Fiziko-tekhnicheskiy institut nizkikh temperatur AN UkrSSR, Khar'kov.
(Magnetooptics) (Crystal lattices) (Magnetic fields)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

KARMAZIN, V.I.; BEBESH, A.A.; POPKOV, Ye.A.

Wet magnetic separation of finely granular, weakly magnetic minerals. Tsvet. met. 36 no.12:74-75 D '63. (MIRA 17:2)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

ACCESSION NR: AP4028442 S/0181/64/006/004/1138/1140

AUTHORS: Yeremenko, V. V.; Popkov, Yu. A.

TITLE: The effect of deformation and a strong magnetic field on exciton absorption of light in crystals of CdS

SOURCE: Fizika tverdogo tela, v. 6, no. 4, 1964, 1138-1140, and insert facing page 1140

TOPIC TAGS: light absorption, exciton, magnetic field, cadmium sulfide, spectrograph ISP 67, comparator IZA 2, diffraction spectrograph DFS 8

ABSTRACT: A number of peculiarities in light absorption by CdS cannot be explained by the rather simple interpretation normally given. The complex structure of the transition n = 1 in the A series cannot be understood without consideration of how much the wave vector of light absorption differs from zero. This means that the quasimomentum of the exciton must be considered. The authors examine the absorption of light by this first exciton transition in CdS crystals. Measurements were made at the temperature of liquid hydrogen. The magneto-optic determinations were made on an ISP-67 spectrograph with self-collimating camera, the linear dispersion being

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ACCESSION NR: AP4028442

1.8 Å/mm. Piezospectroscopic results were obtained on a DFS-8 diffraction spectrograph with a linear dispersion of 6 Å/mm. Frequency was measured by comparing spectra on an IZA-2 comparator with emission Fe lines. When the CdS crystal was compressed unidirectionally along the x axis, the C_{6v} group changed to the C_{2v} group. Application of a magnetic field along the x axis changed the C_{6v} group to the C_s group. Fields up to 160 000 oersteds, however, caused no observational change in intensity of the A_F band. Nor was Zeeman splitting of the A_F or A_L bands observed. Uniaxial compression weakened the A_L band. These results support the authors' belief concerning the need to consider the quasimomentum of the exciton (differing from zero) and to take into account energy differences between longitudinal and transverse excitons in seeking an understanding of the magneto-optical and piezospectrographic properties. Orig. art. has: 5 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut nizkikh temperatur AN UkrSSR, Kharkov (Physicotechnical Institute of Low Temperatures AN UkrSSR)

Card 2/3

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

ACC NR: AP6022998 SOURCE CODE: UR/0185/66/011/004/0395/0403

AUTHOR: Yeremenko, V. V. ; Popkov, Yu. A.

ORG: Physicotechnical Institute of Low Temperatures, AN URSR, Kharkov (Fizikotekhnichnyy instytut nyz' kykh temperatur AN URSR)

TITLE: Absorption spectrum and Zeeman effect of Mn^{2+} ions in ZnS

SOURCE: Ukrayins' kyy fizychnyy zhurnal, v. 11, no. 4, 1966, 395-403

TOPIC TAGS: absorption spectrum, Zeeman effect, temperature dependence, ion distribution, crystal symmetry, activated crystal, zinc sulfide single crystal, manganese ion

ABSTRACT: An attempt has been made to investigate the absorption spectra of manganese ions introduced into transparent ZnS single crystals with a wurzite structure (C_{6v}^4) in the region of transition of $^6S_{5/2} \rightarrow {}^4G$ at temperatures of 4.2 and 20.4 K. Equidistant series are derived and interpreted as electron vibrational. On the basis of Bethe theory, developed by Hellwege, the pattern of Zeeman splitting is calculated under the assumption that the local symmetry of Mn^{2+} ions

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ACC NR: AP6022998

in ZnS is C_{3v} . An experimental investigation of the Zeeman effect in fields up to 1.5 x 10^5 oe indicated a qualitative similarity of field dependences of the splitting of bands with those calculated for the $E_{1/2} \rightarrow E_{1/2}$ transition. The authors thank B. S. Skorobogatov for providing single-crystal samples. Orig. art. has: 4 figures, 2 formulas, and 3 tables. [Based on authors' abstract] [NT]

SUB CODE: 20/ SUBM DATE: 11May66/ ORIG REF: 005/ OTH REF: 013/

Card 2/2

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

L 21131-66 EWT(m)/T/EWP(t) IJP(c) JD

ACC NR: AP6009068 SOURCE CODE: UR/0185/66/011/003/0280/0285

AUTHOR: Popkov, Yu. A.; Yeremenko, V. V.

ORG: Institute of Low-temperature Physics and Technology, Academy of Sciences of the Ukrainian SSR, Khar'kov (Fizyko-tekhnichnyy institut nyz'kykh temperatur AN URSR)

TITLE: The anisotropy of thin-line light absorption spectra in CdS single crystals

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 11, no. 3, 1966, 280-285

TOPIC TAGS: crystal anisotropy, cadmium compound, absorption band, absorption spectrum, exciton

ABSTRACT: The authors investigated the effect of the orientation of the light propagation vector K, with respect to the crystallographic axis C_6 of CdS single crystals on the intensity of thin absorption bands connected with "local" exciton transitions; the temperature used in the process was 4.2K. The dependence of the intensity of some narrow long-wave bands on the orientation of the vector K is equally strong as that of the bands of "free" excitons in which the peculiarity observed may be associated with the effect of spatial dispersion. This casts doubts on the identification of all narrow bands with

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L 21131-66
ACC NR: AP6009068

"local" optical transitions. The estimations of the intensity of light required for the critical (relative to the Bauset-Einstein condensation at 4.2K) concentrations of excitons are revised. The estimation should be raised by two to three orders (up to 10^{21} to 10^{22} photons/cm^2 sec.) since the coefficient of the absorption band A_F, connected with the lowest exciton state, $k \sim 10^2$—10^3 cm^{-1}, is two to three orders less than in case of the A_T band, regarded earlier as the lowest exciton band. Orig. art. has: 1 figure, and 1 table. [Based on author's abstract] [JKP]

SUB CODE: 20/ SUBM DATE: 30Apr65/ ORIG REF: 011/ OTH REF: 006

Card 2/2 dda

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

L 21564-66 EWT(1) IJP(c) SOURCE CODE: UR/0386/66/003/006/0233/0237

ACC NR: AP6008745

AUTHOR: Yeremenko, V. V.; Popkov, YU. A.; Kharchenko, L. T.

ORG: Physicotechnical Institute of Low Temperatures, Academy of Sciences, UkrSSR (Fiziko-tekhnicheskiy institute nizkikh temperature Akademii nauk UkrSSR)

TITLE: Zeeman effect on exciton-magnon bands in antiferromagnetic MnF_2 crystals

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 3, no. 6, 1966, 233-237

TOPIC TAGS: Zeeman effect, exciton, magnon, antiferromagnetic material, manganese compound, spin wave, magnetooptics, strong magnetic field, crystal

ABSTRACT: This is a continuation of earlier work (ZhETF v. 47, 1733, 1964) dealing with the influence of a strong magnetic field, sufficient to flop the spin structure of MnF_2 (spin flopping), on the structure of the optical transition ${}^6A_{1g}({}^6S) \rightarrow {}^4T_{2g}({}^4D)$. In the present study, as a part of a search for additional more direct and more unambiguous experimental proof of the realization of the simultaneous excitation of an exciton and a magnon in a crystal, the authors studied the response of the optical absorption spectrum to magnetic fields strong enough to change the magnetic structure of an antiferromagnetic crystal. MnF_2 was chosen because its internal field is high (90 koe). Magneto-optical investigations in this magnetic-field range, made possible by a pulse technique developed by the authors (Ukr. fiz. zh. v. 8, 88, 1963), were carried out on the narrow absorption bands due to the optical transitions ${}^6A_{1g}$

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$\rightarrow {}^4T_{1g}({}^4G)$ and ${}^6A_{1g} \rightarrow {}^4T_{1g}({}^4P)$. The 18473 cm^{-1} band in the former transition and the 31943 and 32065 cm^{-1} bands in the latter had previously been identified with exciton-magnon transitions. The influence of the magnetic field on the exciton-magnon light-absorption was estimated qualitatively, but for the 18473 cm^{-1} band no qualitative similarity was found between the experimental behavior in the magnetic field and the calculation. This band is not split by an external field but, to the contrary, on reaching critical field it coalesces with its satellite at 18478 cm^{-1}, forming a single narrower and more intense band. This suggests that the interpretation of the 18473 cm^{-1} band as being an exciton-magnon transition is not the only one possible. Qualitative agreement between calculation and experiment in the behavior of the 31943 cm^{-1} band in a magnetic field, since a non-monotonic dependence of the Zeeman splitting on the magnetic field intensity is predicted, is observed. However, the agreement is not complete, and a deeper theoretical analysis of the features of light absorption in antiferromagnetic crystals is needed. It is concluded that the 31943 and 32065 cm^{-1} bands are due to exciton-magnon transitions. This statement is not contradicted by a careful analysis of the shape of these bands, which have noticeable asymmetry.
Orig. art. has: 2 figures and 1 table.

SUB CODE: 20/ SUBM DATE: 31Dec65/ ORIG REF: 005/ OTH REF: 003

UVR

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOV, Yu.A., Gerey Sotsialisticheskogo Truda

Their deed is as good as their word. Transp. stroi. 13 no.1: 32-33 Ja '63 (MIRA 18:2)

1. Brigadir montazhnikov elektromontazhnogo poyezda No.702 tresta Transelektromontazh.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

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YEREMENKO, V.V.; POPKOV, Yu.A.

Effect of deformation and a high magnetic field on the exciton absorption of light in CdS crystals. Fiz. tver. tela 6 no. 4: 1138-1140 Ap '64. (MIRA 17:6)

1. Fiziko-tekhnicheskiy institut nizkikh temperatur AN UkrSSR, Khar'kov.

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68314

SOV/51-8-1-14/40

24.3500

AUTHORS: Vlasenko, N.A., and Popkov, Yu.A.

TITLE: Investigation of Electroluminescence of the Sublimated ZnS-Mn Phosphor

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 1, pp 81-88 (USSR)

ABSTRACT: The authors used Vlasenko's method (Ref 4) to prepare ZnS-Mn phosphors. Pure zinc sulphide and metallic manganese were evaporated in 10^{-5} mm Hg vacuum from tantalum boats onto a glass plate coated with tin dioxide (the latter served as the transparent electrode). The phosphor layers obtained in this way were heat-treated at 500-550°C in order to diffuse the activator into ZnS and to produce good crystal structure in the films. On top of the phosphor layer aluminium was deposited to serve as the second electrode. In some samples a dielectric layer (for example polystyrene) was deposited between the phosphor and the aluminium electrode. ZnS-Mn phosphors prepared in this way had orange luminescence when excited with electron beams, X-rays, ultraviolet light or by means of alternating electric fields. The present paper deals with electroluminescence of sublimated ZnS-Mn films excited from an audio-frequency oscillator ZG-10. The authors investigated the electroluminescence spectrum, luminance waves, dependence of the integral luminance on the intensity and frequency of the applied

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Investigation of Electroluminescence of the Sublimated ZnS-Mn Phosphor

field and certain electrical properties. The electroluminescence spectrum was a simple band of 0.20 eV half-width and a maximum at 2.13 eV (582 mμ); it was practically independent of the intensity and frequency of the applied field. Luminance waves were found to become more asymmetric with increase of the applied field frequency (Fig 1). The luminance wave peaks rose by 2-3 orders of magnitude with increase of the applied field intensity from 3.4×10^5 to 5.0×10^5 V/cm (Fig 3). The ratio of negative to positive luminance peaks (peaks during negative and positive half-periods of the applied field) was also strongly affected by the field; at $E = 2 \times 10^5$ V/cm this ratio was 4.5 and it fell to below 1 at $E = 5.6 \times 10^5$ V/cm (Fig 2). The integral electroluminescence luminance depended on the Mn concentration; at the optimum concentration (0.003 g/g) it was 0.02 stilb for samples 3 μ thick in a 4×10^5 V/cm and 3000 c/s field. The integral luminance rose by 6-8 orders of magnitude when the field intensity increased by a factor of 5-6 (Fig 4); this rise is much greater than in powder phosphors. At a given field intensity the luminance rose also with thickness of the samples. The luminance was proportional to the applied field frequency at low frequencies but above 5000 c/s it reached saturation; the luminescence was independent

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Investigation of Electroluminescence of the Sublimated ZnS-Mn Phosphor

of the frequency, provided the resistance of the transparent electrode was small compared with the impedance of the sample. At high applied field intensities the authors observed non-linear effects in the current-voltage characteristics of the phosphor (Fig 5); deviations from Ohm's law were found in fields greater than 3×10^4 V/cm (Fig 6). When the upper electrode was in immediate contact with the phosphor (i.e. no intermediate dielectric layer) slight rectification was observed at that electrode. At low temperatures (115-250°K) the functions $\log \sigma = f(1/T)$, where σ is the electrical conductivity and T is the absolute temperature, are straight lines whose slopes depend somewhat on the intensity of the applied field (Fig 7). Above 250°K (1/T = 0.004) a sharper rise of the electrical conductivity with temperature was observed. The results obtained show that electroluminescence of sublimated ZnS-Mn phosphors is intrinsic luminescence and it is produced throughout the sample. The authors found also shallow (~0.1 eV) donor levels in ZnS-Mn layers. The ionization energy of these donors depends on the applied field in agreement with Frenkel's theory of thermal ionization aided by electric fields. Acknowledgments are

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POPKOV, Yu.A., vrach (Moskva)

New surgical apparatus and instruments. Med.sestra 18 no.12:25-26 '59. (MIRA 13:3)

(SURGICAL INSTRUMENTS AND APPARATUS)

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L 19046-65 EWT(1) ASD(a)-5/SSD/AS(mp)-2/AFWL/RAEM(a)/ESD(gs)/ESD(t)

ACCESSION NR: AP5000322 S/0056/64/047/005/1733/1735

AUTHOR: Yeremenko, V. V.; Popkov, Yu. A.; Litvinenko, Yu. G.

TITLE: Zeeman effect in the optical spectrum of antiferromagnetic MnF_2 crystals

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47, no. 5, 1964, 1733-1735

TOPIC TAGS: Zeeman effect, manganese compound, optical spectrum, antiferromagnetism, magnetooptical effect

ABSTRACT: The influence of strong magnetic fields (up to 2×10^5 Oe) on the structure of the spectrum of light absorption by antiferromagnetic MnF_2 crystals was measured at 20.4K with the magnetic field oriented both parallel and perpendicular to the C_4 axis of the crystals. The spectra were photographed with a DFS-13 diffraction

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L 19016-65

ACCESSION NR: AP5000322

spectrograph with linear dispersion approximately 3 Å/mm. The most clearly pronounced groups of absorption bands, due to the transitions $^6S_{5/2} \rightarrow {}^4G$ and $^6S_{5/2} \rightarrow {}^4D$ in the Mn^{++} ion, and located near 3900 and 3500 Å respectively, were investigated. Frequency shifts and band splitting in magnetic field exceeding 95 kOe (at which the magnetic sublattices of MnF_2 are inverted) were observed in the region of the optical transition $^6S_{5/2} \rightarrow {}^4D$. This fact, and also the fact that the magneto-optical effect is observed only when the field is oriented parallel to C_4 (the only orientation when inversion of the sublattices can be expected), leads to the conclusion that the magneto-optical effect and the inversion of the magnetic sublattices are related. "I am sincerely grateful to corresponding member AN UkrSSR B. I. Verkin and Professor A. S. Borovik-Romanov for interest in the work, and also N. N. Mikhaylov and S. P. Petrov for supplying

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

L 19046-65
ACCESSION NR: AP5000322

the single crystals." Orig. art. has: 3 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut nizkikh temperatur Akademii nauk Ukrainskoy SSR (Physicotechnical Institute of Low Temperatures, Academy of Sciences, UkrSSR)

SUBMITTED: 20Jun64 ENCL: 00 SUB CODE: SS, OP

NO REF SOV: 005 OTHER: 009 ATD PRESS: 3157

Card 3/3

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

L 10916-66 EWT(1)/EWT(m)/EWP(t)/EWP(b) IJP(c) JD/AW/JW/GG

ACC NR: AP6002036 SOURCE CODE: GE/0030/65/012/002/0627/0638

AUTHOR: Eremenko, V. V.; Popkov, Yu. A.

ORG: Physico-Technical Institute of Low Temperatures of the Ukrainian Academy of Sciences, Kharkov

TITLE: Magnetooptical investigation of antiferromagnets

SOURCE: Physica status solidi, v. 12, no. 2, 1965, 627-638

TOPIC TAGS: antiferromagnetic material, fluoride, carbonate, Zeeman effect, magnetic field, absorption spectrum, single crystal, magnetooptics

ABSTRACT: An experimental study was made of the effect of high magnetic fields on the structure of the optical absorption spectra of Mn^{2+} and Co^{2+} in single crystals of antiferromagnetic fluorides and carbonates and in single crystals of of fluorides of mixed content containing both ions simultaneously. The investigation was conducted at temperatures much lower than the temperature of antiferromagnetic ordering (T = 20.4 and 4.2K) in magnetic fields up to 1.7×10^5 Oe. The magnetooptical effects in the fluorides are associated with spin-flipping of the magnetic sublattices by the external field. This may be due to a significant spin-orbital exchange in states (the final states for the optical transitions responsible for the absorption bands) which respond to the reestablishment of the antiferromagnetic structure by the external field. Zeeman splitting and shifting of some absorption lines was observed in antiferromagnetic carbonates in which

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ACC NR: AP6002036

the magnetic structure cannot be changed by the external field. This was attributed to the fact that the internal field H_E, perpendicular to the C_3 axis of the crystal, affects some excited states of Mn^{2+} and Co^{2+} to a lesser degree than the external field H parallel to the C_3-axis, even though $H<<H_E$. Orig. art. has: 6 figures and 2 tables. [CS]

SUB CODE: 20 / SUBM DATE: 04Sep65/ ORIG REF: 012/ OTH REF: 017/ ATD PRESS: 4170

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

VAULIN, V.A.; POMAZAN, I.F.; ANOSHKIN, A.M.; POPKOV, Yu.L.

Using deep holes in breaking ores in shrinkage stoping.
Biul.tekh.-ekon.inform. no.8:5-7 '59. (MIRA 13:1)
(Stoping(Mining))

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

32248
S/103/61/022/012/005/016
D201/D305

16.8000 (1329, 1131, 1132)

AUTHOR: Popkov, Yu. S. (Moscow)

TITLE: Complex periodic states in an extremum relay system

PERIODICAL: Avtomatika i telemekhanika, v. 22, no. 12, 1961, 1585-1592

TEXT: The author analyzes the conditions and the regions of existence of complex periodic states in an extremum relay system, for two aspects of linearization of the non-linear part of their characteristics: a) When it is approximated by the function $z = -k_H|y|$ and b) by the function $z = -k_H y^2$. When the relay system of extremum regulation has the extremum characteristic as in a) the system may be replaced by an equivalent one, in which the extremum regulator with many quantization levels is replaced by a relay with hysteresis; also the limits of the region of possible values of gain, at which complex oscillations of multiplicity N occur, is given by

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Complex periodic states ...

$$\text{Im } I_N(\omega) = - N\varkappa, \qquad \text{Re } I_N(\omega) < 0$$

$$\max \tilde{z}^0(t) = (N + 1)\varkappa \qquad (5b)$$

where $\varkappa$ is the magnitude of quantization level. When the relay system of extremum regulation has an extremum characteristic of the form $z = - k_H y^2$, so that both its branches are very much non-linear the method described above fails. However, by reducing the system of equations representing the relay system to their canonical form and by using linear approximation techniques, an approximate expression may be obtained

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

Complex periodic states ...

$$\frac{\sqrt{ix}}{k_p k_H} = T\left[(\gamma_i)(-1)^i + 2\sum_{k=1}^{i-1}\gamma_k + \frac{1}{2}\right]A_0 +$$
$$+ \frac{T}{2}(2\gamma_i - 1)B_\nu - 2TB_\nu \sum_{k=1}^{i-1}(-1)^k(\gamma_i - \gamma_k) - A_\nu,$$

where

$$\frac{P_1(0)}{D_1(0)}, \quad B_\nu = \sum_{\nu=1}^{n}\frac{P_1(p_\nu)}{p_\nu D_1(p_\nu)}, \quad A_\nu = \sum_{\nu=1}^{n}\frac{P_1(p_\nu)}{p_\nu^2 D_1(p_\nu)}. \qquad (7)$$

where p_ν = poles of the transfer function W(p). This leads to a system of linear equations for determining $T_{\gamma 1}$, $T_{\gamma 2}$ ... $T_{\gamma N-1}$. T which, with other conditions for complex oscillations, determines the regions of parameters within which the oscillations exist. As

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

Complex periodic states ...

to the stability of the oscillating state, it is shown that the first approximation of a relay system of extremum regulation, operating in the regime of complex oscillations, is a pulse system with N pulse elements, operating at the same repetition period but out of phase and of one continuously operating section having a transfer function W(p). Its functional diagram is given in Fig. 6 and the stability of its equilibrium state may be analyzed by the usual methods. It is stated in conclusion that certain recommendations on the application of the above methods of analysis may be made. For a whole class of objects to be controlled a fully determined hunting velocity k is required. This leads to complex oscillations which, when allowed to be established, may produce a frequency very near to that of a critical state, with a slightly larger amplitude and which may be preferred to a more complicated, but less reliable system with no oscillations. There are 6 figures and 6 Soviet-bloc references.

Submitted: March 14, 1961

Card 4/5

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

S/103/63/024/004/005/014
D201/D308

AUTHOR: Popkov, Yu.S. (Moscow)

TITLE: Equations of motion of sampled-data extremal systems with a constant repetition period

PERIODICAL: Avtomatika i telemekhanika, v. 24, no. 4, 1963, 472-481

TEXT: The author classifies the existing types of sampled-data extremal systems, and by means of a discrete Laplace transformation obtains the equation of motion applicable to any sampled-data extremal control system with a constant repetition period. This equation is a non-linear integral equation in complex plane. The problem of analysis of the dynamic properties of the above systems is thus reduced to that of the solution of this equation, as applied to a given class of the system. It is further shown that, for a particular case of an extremal on-off system, with independent follow-up, the fundamental integral equation reduces to the normal equation of a relay on-off system, and that for a system with dependent foll-

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Equations of motion ...

ow-up this equation reduces to the equation of a linear on-off system which may be analyzed by the usual methods. Independent follow-up systems are said to be systems in which the rate of change of the input coordinate of the object remains constant and independent of the distance from the extremum. There are 1 figure and 1 table.

SUBMITTED: July 10, 1962

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOV, Yu.S. (Moskva)

Transient and steady-state conditions in optimalizing sampled-data systems with independent search. Avtom. i telem. 24 no.11:1487-1500 N '63. (MIRA 16:12)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

L 34692-65 EPF(n)-2/EWT(d)/EWP(1) Pg-4/Pk-4/Pl-4/Po-4/Pq-4/Pu-4 IJP(c)
ACCESSION NR: AP4047577 WM/BC S/0103/64/025/010/1462/1471 34
B

AUTHOR: Popkov, Yu. S. (Moscow)

TITLE: The effect of intense noise on periodic modes in sampled-data extremal systems with independent search

SOURCE: Avtomatika i telemekhanika, v. 25, no. 10, 1964, 1462-1471

TOPIC TAGS: sampled data system, sampled data extremal system, statistical linearization method, Markov process, extremal control

ABSTRACT: The effect of random noise on periodic modes in sampled-data extremal systems with independent search is analyzed by means of a statistical linearization method and the theory of Markov processes. It is pointed out that when there is noise, the periodic modes of the system will be distorted, but at some noise intensity, a certain "average" periodic mode ("average" cycle) exists. This "average" cycle is characterized by the average values of the output signal and of its derivative. The average value of the input signal varies with a definite period which is distinct from the period of

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L 34692-65

ACCESSION NR: AP4047577

noise-free oscillations. Conditions for the existence of the "average" cycle are written and a method is presented for determining the frequency characteristics of sampled-data extremal systems in the presence of noise. A set of relations is derived which can be used to determine the frequency characteristics, variations in the character of the periodic mode, and the intensity of noise at which periodic modes are disrupted. It is shown by means of a specific system how random noise affects periodic modes, and that variance in the noise which causes the periodic mode to be disrupted is determined. It appears that oscillations are disrupted in sampled-data extremal systems when the variance is 1.5 times larger than the variance in an analogous relay extremal system. Orig. art. has: 5 figures and 41 formulas.

ASSOCIATION: none

SUBMITTED: 05Jul63 ENCL: 00 SUB CODE: MA

NO REF SOV: 006 OTHER: 002

Card 2/2

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

L 46658-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) BC

ACC NR: AP6021393 SOURCE CODE: UR/0103/66/000/006/0090/0098

AUTHOR: Popkov, Yu. S. (Moscow)

B
70

ORG: none:

TITLE: Asymptotic characteristics of an optimal extreme control system 14

SOURCE: Avtomatika i telemekhanika, no. 6, 1966, 90-98

TOPIC TAGS: self adaptive control, signal to noise ratio, optimal automatic control, ASYMPTOTIC PROPERTY

ABSTRACT: In the present paper a comparison is drawn between a new class of optimal analytic extremum-control systems (ECS), synthesized on the basis of the nonlinear filtration theory, with a particular, but very simple and well known type of this system, the ECS with the correlation method of control. An estimate is given of the gain which the new class of systems acquire through structural optimization. It is found that with an arbitrary quality functional and arbitrary statistical characteristics on the part of the input signals, the optimal extremum-control system has a number of advantages over the ECS with correlative control in the area of large signals. In the case of normal and independent signals and noise it is shown that with a ratio of noise dispersion to useful-signal dispersion tending toward zero, an optimal ECS becomes an ECS with the correlative method of control. Orig. art. has: 2 figures and 22

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UDC: 62-505

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

L 46658-65

ACC NR: AP6021393

formulas.

SUB CODE: 09,12/ SUBM DATE: 12Oct65/ ORIG REF: 002/ OTH REF: 000

Card 2/2 esh

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

LIBERZON, Leonid Mikhaylovich; RODOV, Aleksandr Borisovich; KAZAKEVICH, V.V., prof., red.; POPKOV, Yu.S., red.

[Optimalizing control systems] Sistemy ekstremal'nogo regulirovaniia. Pod red. V.V.Kazakevicha. Moskva, Energiia, 1965. 158 p. (Biblioteka po avtomatike, no.154) (MIRA 19:1)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

AM4016101

BOOK EXPLOITATION

S/

Popkov, S. L.; Popkov, Yu. S.

Continuous and discrete servomechanisms (Neprery*vny*ye i diskretny*ye sledyashchiye sistemy*). Moscow, Izd-vo "Energiya", 1964. 303 p. illus., biblio. 15,000 copies printed.

TOPIC TAGS: servomechanism, servosystem, continuous servosystem, discrete servosystem, linear servosystem, nonlinear servosystem, pulse servosystem, digital servomechanism

PURPOSE AND COVERAGE: This book is intended for technical and scientific personnel concerned with automation. It deals with some problems of the theories and the calculation of continuous servosystems during regular and random effects and of relay and pulse servosystems. Various types of coding and decoding converters are studied on the basis of digital servosystems and a qualitative evaluation of the latter is given.

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ALAD'YEV, I.T.; ALEKSANDROV, B.K.; BAUM, V.A.; GOLOVINA, Ye.S.; GOL'DENBERG, S.A.; ZHIMERIN, D.G.; ZAKHARIN, A.G.; IYEVLEV, V.N.; KNORRE, V.G.; KOZLOV, G.I.; LEONT'YEVA, Z.I.; MARKOVICH, I.M.; MEYEROVICH, E.A.; MIKHNEVICH, G.V.; POPKOV, Z.I.; POPOV, V.A.; PREDVODITELEV, A.S.; PYATNITSKIY, L.N.; STYRIKOVICH, M.A.; TOLSTOV, Yu.G.; TSUKHANOVA, O.A.; CHUKHANOV, Z.F.; SHEYNDLIN, A.Ye.

Lev Nikolaevich Khitrin, 1907-1965; obituary. Izv. AN SSSR. Energ. i transp. no.2:159-160 Mr-Ap '65. (MIRA 18:6)

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, A.A.

Sound damper. Stek. i ker. 17 no. 11:39 N '60. (MIRA 13:12)
(Damping (Mechanics))

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, A.D.

Balance sheet of the national economy and control units in industrial statistics. Vest. LGU 12 no.5:28-37 '57. (MLRA 10:6)
(Industrial statistics)

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, F. F. Cand. Med. Sci.

Dissertation: "Adsorbed Serums in the Diagnosis of Dysenteria."

20/2/50
First Moscow Order of Lenin Medical Inst.

SO Vecheryaya Moskva
Sum 71

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

FUKS, I.M.; VALEYEVA, F.N.; POPKOVA, F.V.; VOLKOVA, L.P.; BELOGOLOVSKAYA, T.A.; ROMASHKEVICH, I.K.; Prinimali uchastiye: MOROZOVA, L.M.; DASHEVSKAYA, S.I.; VAKHMINA, L.S.; KARAVAYEVA, G.V.; IVANOVSKIY, A.K.; ZHUKHINA, G.Ye.; SOLOV'YEVA, G.M.; ANDRIYANOVA, M.V.; AKHMETOVA, V.M.; NEMIROVSKAYA, M.Ye.; MUSORINA, L.S.; KALASHNIKOVA, Ye.I.; PESHKO, A.P.; IVANOVA, N.V.; ALKESEYEVA, N.I.; SADOVNIKOVA, G.N.

Study on the possibility of reducing the diphtheria vaccine dose in revaccination of 9 to 12 year-old schoolchildren. Zhur. mikrobiol., epid. i immun. 41 no.11:103-107 '65. (MIRA 18:5)

1. Ufimskiy institut vaktsin i syvorotok imeni Mechnikova.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, G.A.

Somatic nuclei of the spinal cord in farm and laboratory animals. Trudy KirgNOAG. no.2:93-95 '65.

Sympathetic nervous system. Ibid.:96-98

Conducting tracts and their relation to the nuclei of the spinal cord. Ibid.:98-100 (MIRA 18:11)

1. Iz Instituta eksperimental'noy biologii AN Kazakhskoy SSR (dir. - chlen-korrespondent AN Kazakhskoy SSR prof. F.M. Mukhamedgaliyev).

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, G.A.; POTSELUYEVA, L.M.

Vascular characteristics of the spinal cord in swine. Trudy Inst. eksp. biol. AN Kazakh. SSR 11:86-93 '65.

(MIRA 18:10)

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VAVER, V.A.; PROKAZOVA, N.V.; USHAKOV, A.N.; POPKOVA, G.A.; BERGEL'SON, L.D.

Chemistry of lipids. Report No.5. Dihydric alcohol derivatives as new kinds of neutral lipids. Khim. prirod. soed. no.6:401-409 '65. (MIRA 19:1)

1. Institut khimii prirodnykh soyedineniy AN SSSR. Submitted June 21, 1965.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

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POPKOVA, G.A.

Morphology of the system of lower nervous activity. Report No.1. Spinal cord. Trudy Inst. fiziol. AN Kazakh. SSR. 4:21-38 '63.

Morphology of the system of the lower nervous activity. Report No. 2. [illegible]athetic nervous system. Ibid.:39-55

(MIRA 17:10)

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POPKOVA, G.A.

Rolandic substance of the dorsal horn of the spinal cord. Izv. AN Kazakh. SSR. Ser. biol. nauk 2 no.2:88-94 Mr-Ap '64
(MIRA 18:2)

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POPKOVA, G.A., kandidat biologicheskikh nauk, assistent.

Possible ways of affecting the organism through the nervous system.
Veterinariia 30 no.1:38-40 Ja '53. (MLRA 6:1)

1. Semipalatinskiy zooveterinarnyy institut.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, K., kand. biolog.nauk; NIKULINA, N., agronom-fitopatolog

Phytophthora infection of potatoes. Zashch. rast. ot vred. i bol. 10 no.6:28-29 '65. (MIRA 18:7)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

AUTHOR: Popkova, K. SOV-4-58-8-8/25

TITLE: The Upas-Tree (lat. antiaris toxicaria) Becomes a Symbol of Life (Anchar stanovitsya simvolom zhizni)

PERIODICAL: Znaniye-sila, 1958, Nr 8, p 6 (USSR)

ABSTRACT: The Institut lesovodstva i lesnogo khozyaystva (Institute of Forestry), near Moscow, is trying to make artificial "upas-trees", of which the leaves are to be either poisonous or non-edible for forest pest. A collaborator of the forest preservation department, V.I. Goryacheva said that after applying certain chemicals to the roots for a period of two years, the trees remain poisonous for one more year and are unattractive to insects. The procedure of soil treatment then has to be repeated. No details are given.
There is 1 drawing.

1. Pest control--USSR 2. Forestry--USSR

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, K.V., kand. sel'skokhoz. nauk; NIKULINA, N.K., fitopatolog

Controlling Phytophthora. Zashch. rast. ot vred. i bol. 9 no.6:31-32 '64 (MIRA 17:8)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

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POPKOVA,K.V., Cand Bio Sci--(diss) "~~The~~ Resistance of the potato plant to phytofluorine and its changes ~~in connection with the~~ as a function of plant nutrition, ~~of the planter~~" Mos, 1958. 15 pp (Mos State Pedagogical Inst im V.I.Lenin), 150 copies (KL,44-58,121)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

GRECHUSHNIKOV, A.I., POPKOVA, K.V.

Reduced resistance to Phytophthora infestans in ringed leaves of blight resistant potato varieties [with summary in English]. Izv.AN SSSR. Ser.biol. no.4:456-462 Jl-Ag '58 (MIRA 11:8)

1. Nauchno-issledovatel'skiy institut kartofel'nogo khozyaystva, Korenevo, Moskovskaya oblast'.
(POTATOES--DISEASE AND PEST RESISTANCE)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, K.V., kand. biolog. nauk; SHNEYDER, Yu.M., kand. biolog. nauk

Preparation of potatoes for planting. Zashch. rast. ot vred. i bol. 9 no.5:29-30 '64. (MIRA 17:6)

1. Institut kartofel'nogo khozyaystva, Kraskovo.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

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POPKOVA, L. D.

Astronomy - Study and Teaching

Astronomical instrument. Fiz. v shkole No. 5, 1952.

Monthly List of Russian Accessions, Library of Congress, December 1952. Unclassified

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

L 52113-65 EPF(c)/EPR/EWP(j)/EWA(c)/EWT(m)/T Pc-4/Pr-4/Ps-4 RPL WW/RM

ACCESSION NR: AP5015236 UR/0286/65/000/009/0021/0021

AUTHORS: Yakubovich, A. Ya.; Ginsburg, V. A.; Muler, L. I.; Bay, L. I.; Popkova, G. I.

TITLE: A method for obtaining n-cyanostyrene. Class 12, No. 170490

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 9, 1965, 21

TOPIC TAGS: cyanostyrene, vinylbenzoic acid, amide, phosphorus pentoxide

ABSTRACT: This Author Certificate presents a method for obtaining n-cyanostyrene. To simplify the process and to broaden the selection of raw material, n-vinylbenzoic acid amide is dehydrated with phosphorus pentoxide while being warmed in a vacuum.

ASSOCIATION: Organizatsiya gosudarstvennogo komiteta khimicheskoy i neftyanoy promyshlennosti pri gosplane SSSR (Enterprise of the State Committee of the Chemical and Petroleum Industry at the Gosplan SSSR)

SUBMITTED: 09Apr63 ENCL: 00 SUB CODE: OC

NO REF SOV: 000 OTHER: 000

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, L.M.; LEVIK, N.P.; VOYTSEKHOVSKIY, A.P.; REZNICHENKO, T.N.

First test of the use of chromates to increase the heat resistance of clay muds. Burenie no.4:12-14 '64. (MIRA 18:5)

1. Moskovskiy ordena Trudovogo Krasnogo Znameni institut neftekhimicheskoy i gazovoy promyshlennosti im. akad. Gubkina i Krasnodarskiy filial Vsesoyuznogo neftegazovogo nauchno-issledovatel'skogo instituta.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

KISTER, E.G.; ZLOTNIK, D.Ye.; POPKOVA, L.M.; NAZAROVA, V.D.; SHASKOL'-SKAYA, T.P.

Combination chromate reagents for flushing fluids. Burenie no.9:17-18 '65. (MIRA 18:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut burovoy tekhniki.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

PETROV, Ye.I.; NOVOSELOV, V.A.; Prinimali uchastiye: CHVANOV, P.A.; SHIROKOV, L.F.; KOROBKOV, V.P.; KULAYEV, P.A.; POPKOVA, L.F.; LEBEDEV, I.M.; BAKAYEV, A.M.

Flotation of Sibay deposit zinc ores. TSvet. met. 35 no.3: 15-18 Mr '62. (MIRA 15:4)
(Flotation) (Sibay region—Zinc ores)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

FRIDRIKHSBERG, D.A.; GERASIMOVA, N.G.; POPKOVA, L.P.

Surface conductivity study in the region of the isoelectric state. Koll. zhur. 22 no.4:489-496 Jl-Ag '60. (MIRA 13:9)

1. Leningradskiy universitet im. A.A.Zhdanova, Kafedra kolloidnoy khimii.

(Ions--Migration and velocity) (Isoelectric point)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, N.F. [deceased]; RYLOVA, L.T.; BEKLEMISHEVA, Ye.D.; SHORSHER, S.B.; SHKREBKO, V.L.; POKROVSKAYA, Ye. A.

Characteristics of dysentery caused by Stutzer-Schmitz shigella. Zhur. mikrobiol., epid. i immun. 43 no. 1:31-33 Ja '66 (MIRA 19:1)

1. Yaroslavskiy meditsinskiy institut, Rybinskaya gorodskaya i Yaroslavskaya oblastnaya sanitarno-epidemiologicheskiye stantsii. Submitted January 4, 1965.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, P.I., kand. med. nauk

Concentration of penicillin in the blood, urine and sputum following intramuscular introduction furing acute pneumonia. Trudy Kaf. proped. vnutr. bol. LPMI no.3:65-71 '64.

Recent data on the microflora in acute pneumonia. Ibid.:72-75

Characteristics of the clinical picture of pneumonias in influenza A_2. Ibid.:118-122

Phonocardiography in cardiac mitral defects and rheumatic carditis. Ibid.:164-170 (MIRA 19:1)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

KOFMAN, S.Ya., prof.; POPKOVA, P.I., kand. med. nauk

Local cutaneous eosinophilic reaction in allergic diseases.
Trudy Kaf. propod. vnutr. bol. LPMI no.3:125-131 '64.
(MIRA 19:1)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, P.I., kand. med. nauk; RUSO, G.S.

Waldman's cup endothelial test in influenza A_2. Trudy Kaf. proped. vnutr. bol. LPMI no.3:100-101 '64. (MIRA 19:1)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

KOZ'MINA-SOKOLOVA, V.N., kand. med. nauk; POPKOVA, P.I., kand. med. nauk

Protein fractions of the blood in influenza A2. Trudy Kaf. proped. vnutr. bol. LPMI no.3:111-113 '64.

Phonocardiography in hypertension. Ibid.:171-176

(MIRA 19:1)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, P.I., kand.med.nauk

Sedimentograms and electrophoretic recordings in two cases of multiple myeloma. Vop. pat. krovi i krovoobr. no.5:82-90 '59. (MIRA 15:4)
(MARROW--TUMORS) (PAPER ELECTROPHORESIS)
(BLOOD--SEDIMENTATION)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

SMIRNOVA, N.A.; POPKOVA, R.F.

Interaction of cerebral and abdominal ganglia of the edible snail Helix pomatia in reflex regulation of cardiac activity. Nauch. dokl.vys.shkoly; biol.nauki no.4:59-63 '62. (MIRA 15:10)

1. Rekomendovana kafedroy fiziologii zhivotnykh Moskovskogo gosudarstvennogo universiteta im. Lomonosova.
(NERVOUS SYSTEM--MOLLUSKS) (HEART)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

TROSTOYANSKAYA, Ye.B.; VENKOVA, Ye.S.; Prinimali uchastiye: IVANCHIKOVA, M.S.; POPKOVA, R.M.

Hardening of epoxide adhesive compositions and compounds. Plast. massy no.8:16-18 '61. (MIRA 14:7)
(Epoxy resins) (Adhesives)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

L 08270-67 EWT(1) SCTB DD/GD

ACC NR: AT6036465 SOURCE CODE: UR/0000/66/000/000/0009/0010

AUTHOR: Abramova, V. M.; Gertsuskiy, D. F.; Alekseyenko, L. V.; Nevzgodina, L. V.; Popkova, S. A.

17
B+1

ORG: none

TITLE: Sensitivity of potato seeds to proton and gamma radiation [Paper presented at conference on problems of space medicine held in Moscow from 24-27 May 1966]

SOURCE CODE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 9-10

TOPIC TAGS: ionizing radiation biologic effect, relative biologic efficiency, cosmic radiation biologic effect, radiation genetic effect, plant genetics

ABSTRACT:

Proton irradiation is the greatest spaceflight hazard to the plant link in a closed ecological system. Unfortunately, little is yet known about the RBE of protons as compared with x-rays or gamma rays. Experiments were conducted to study the RBE of protons and gamma rays for higher plants. Potato seeds were irradiated with 660-Mev protons (dose power 84 rad/sec) from and OIYAI synchrocyclotron or with gamma rays from an EGO-4 apparatus in a dose range from 500—50,000 rad (dose power

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

ACC NR: AT6036465

182 rad/min). Experimental results showed that potato seeds are twice as resistant to radiation as potato tubers. In addition, it was found that proton irradiation caused more significant changes in the growth and development of potato seedlings than gamma irradiation. The LD_{100} for proton-irradiated seeds is about 30,000 rad: for gamma-irradiated seeds the LD_{100} is more than 50,000 rad. These results agree with literature data. Doses from 500 to 10,000 rad were found to stimulate tuber formation, while doses above 10,000 rad depressed this process. From these data it was determined that the RBE of 660-Mev protons varies from 0.5 to 2.3. Study of the effect of radiation on the chromosome structure of the cell showed that for protons the coefficients of RGE (Relative Genetic Effectiveness—defined as the percentage of cells with chromosome aberrations) in the dose range 500—50,000 rad vary from 0.7—2.6. A close correspondence between extremal values of RBE and RGE of 660-Mev protons for potato seeds was observed. Literature data and results of these experiments show that a year is sufficient to produce a potato crop from seeds. It was concluded that cultivation of potatoes from seeds can be of great practical value on long spaceflights, especially during radiation emergencies.

[W.A. No. 22; ATD Report 66-117]

SUB CODE: 06 / SUBM DATE: 00May66

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

ACC NR: AT6036529 SOURCE CODE: UR/0000/66/000/000/0119/0120

AUTHOR: Gertsuskiy, D. F.; Abramova, V. M.; Alekseyenko, L. V.; Sychkov, M. A.; Popkova, S. A.; Petrenko, L. M.

ORG: none

TITLE: Effect of 660-Mev protons and gamma rays on potato tubers irradiated before planting /Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966./

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 119-120

TOPIC TAGS: ionizing radiation biologic effect, cosmic radiation biologic effect, relative biologic efficiency, plant genetics, radiation genetic effect, space food, bioastronautics

ABSTRACT: The effect of 660-Mev protons and Co^{60} gamma rays on potato tubers (variety "Khibinskiy ranniy") was studied. Tubers were irradiated with 660-Mev protons from an OIYAI synchrocyclotron and gamma rays from an EGO-2 apparatus in the 250—10,000 rad dose range. The experiment was conducted in field conditions in three parts (50 specimens each). The following indices of radiation effect were used: germination, tempo

Card 1/3

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

of development, number of tubers, and their total weight.

Ionizing radiation is known to affect both the growth and development rates and the productivity of the potato: small doses have a stimulating effect and large doses a depressing effect. Experimental results showed that a proton dose of 250 rad or a dose of gamma rays from 500 to 1000 rad stimulates the appearance of seedlings and the beginning of budding. A considerable depressing effect was noted beginning with doses of 500 rad (protons) and over 1000 rad (gamma rays). Analagous results were obtained with respect to the number of stalks from one tuber and the height of the plants.

Potato productivity changes under the influence of radiation. The general rule of decrease in productivity with increase in dose is retained. This may be explained by the smaller number of tubers per experimental plant with all the doses used. The average number of tubers per plant was six with a 500-rad dose of protons, and eight for the same gamma-ray dose (as compared with nine in the control). Visual observations of full-grown plants showed that the stimulating effect of small radiation doses is most strongly manifested in initial developmental phases, and disappears gradually with time. In the period before blossoming, it is already difficult to detect the stimulating effect of a 250—500-rad dose. The depressing

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ACC NR: AT6036529

effect of large radiation doses also seems to attenuate with time. Seventy days after planting, individual seedlings sprouted from specimens irradiated with a dose of 4000 rad. Doses of either gamma rays or protons higher than 4000 rad completely prevented germination: however, the tubers did not rot in the ground and retained their turgor. Experiments showed that potato tubers are radiosensitive and that protons have a greater effect on their growth, development and yield than gamma rays. [W. A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 3/3

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

BELOVA, A.A., kand.med.nauk; POPKOVA, T.A. (Moskva)

Works of Soviet graphic art as materials for the study of medical history. Sov.zdrav. 22 no.4:47-50 '63. (MIRA 16:4)
(MEDICINE AND ART)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

KANDF!IS, V.A.; POPKOVA, T.F.; BONDAR', G.V.

Case of hemangicendothelioma of the spleen. Klin. khir. no.1:60-61 '65. (MIRA 18:8)

1. Propedevticheskaya khirurgicheskaya klinika No.1 (zav. -- dotsent A.M.Ganichkin) Donetskogo meditsinskogo instituta na baze Oblastnoy klinicheskoy bol'nitsy imeni Kalinina.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPLAVKO, Mikhail Vasil'yevich; MANUYLOV, Nikolay Nikolayevich; GRUZDEVA, Larisa Alekseyevna; ZVEGINTSEVA, K.V., red.; GARMASH, L.M., otv. za vypusk; SUKHAREVA, R.A., tekhn.red.

[Welding of titanium] Svarka titana. Moskva, Mosk.dom nauchno-tekhn.propagandy im.F.E.Dzerzhinskogo, 1958. 37 p. (Peredovoi opyt proizvodstva. Ser."Tekhnologiia mashinostroeniia," no.29. Svarka, paika i metallizatsiia) (MIRA 13:1)
(Titanium--Welding)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, N. F.

USSR/Medicine - Dysentery Jul 53

"Comparative Evaluation of Methods for the Laboratory Diagnosis of Dysentery," S. A. Botvinik, N. F. Popkova, Ye. A. Smirdina, Chair of Microbiol, Yaroslavl' Med Inst

Zhur Mikro, Epid, i Immun, No 7, pp 68-71

On the basis of the results described, the reaction of precipitation isolated hapten and the reaction of agglutination of mixed cultures can be recommended as useful methods supplementing the routine bacteriological examination. These

267T49

methods permit a diagnosis within 24 hrs, while a bacteriological test requires 3-4 days. The reaction of complement fixation (RSK) is not specific enough and for that reason uncertain. The RSK procedure developed by Ginzburg et al, at the Inst im Mechnikov /not further identified/ was used.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

BOTVINIK, S.A., dotsent, zaveduyushchiy; POPKOVA, N.F.; KUROCHKIN, I.D.; POSTROMA, Ye.V.

Early and accelerated methods of laboratory diagnosis of dysentery. Second report. Zhur.mikrobiol.epid.i immun. no.9:34-37 S '53. (MLRA 6:11)

1. Kafedra mikrobiologii Yaroslavskogo meditsinskogo instituta.
(Dysentery)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, N.F.,; YETS, A.G.,; KLETSKIN, S.Z.

Effect of an onion-garlic extract on pus-forming bacteria.
Zhur. mikrobiol., epid. i immun. 27 no.1:105-106 Ja '56.(MLRA 9:5)

1. Iz kafedry mikrobiologii (zav.-prof. D.F. TSimbalist) i kafedry obshchey khirurgii (zav.-prof. S.G. Rukosuyev) Yaroslavskogo meditsinskogo instituta (dir.-prof. N.Ye. Yarygin)

(GARLIC,
extract of garlic & onion, eff. on pus-forming bacteria (Rus))
(VEGETABLES,
onion, extract of onion & garlic, eff. on pus-forming bact. (Rus))
(BACTERIA,
pus-forming, eff. of onion & garlic extract (Rus))

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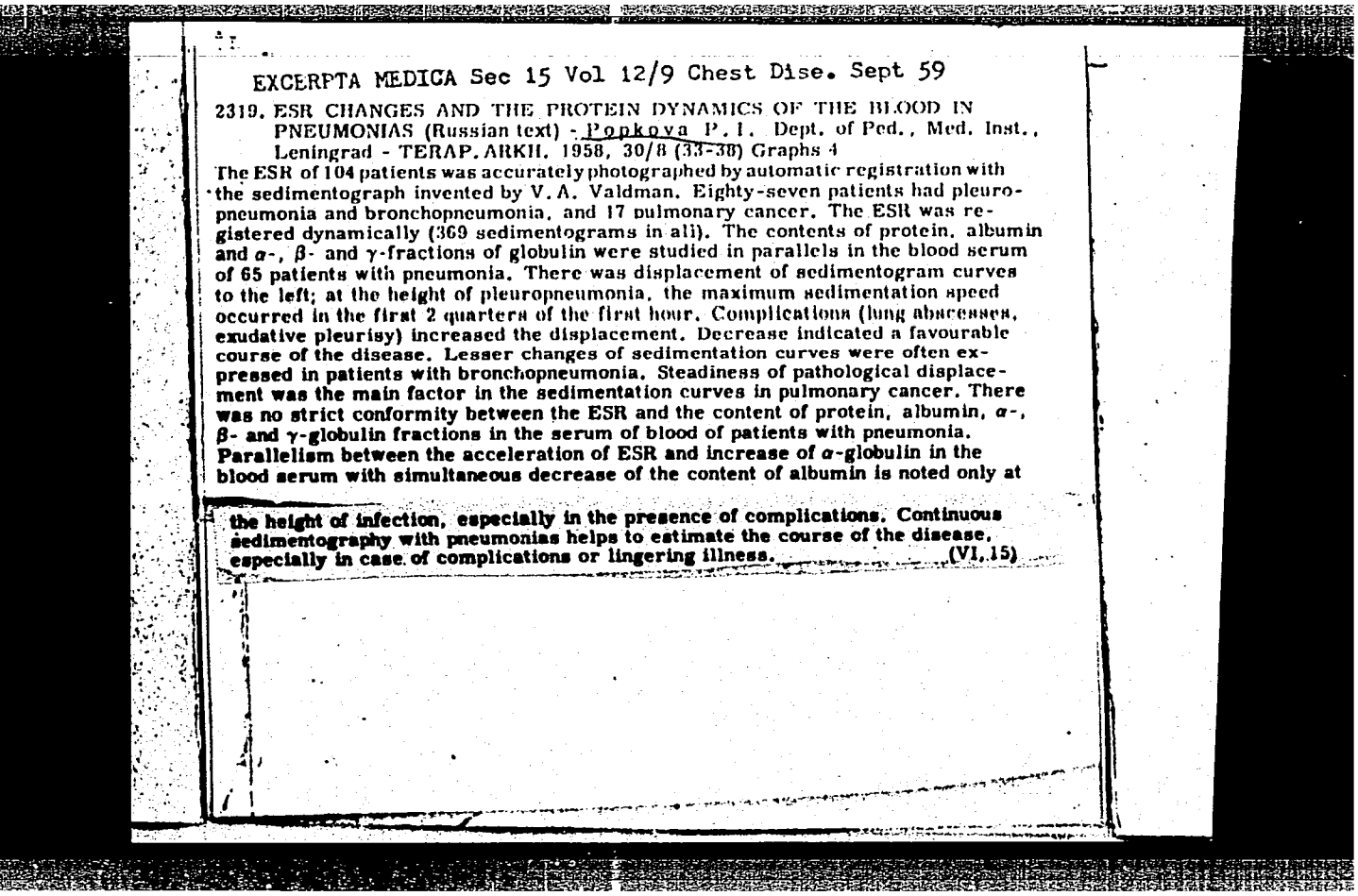
"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5



EXCERPTA MEDICA Sec 15 Vol 12/9 Chest Dise. Sept 59

2319. ESR CHANGES AND THE PROTEIN DYNAMICS OF THE BLOOD IN PNEUMONIAS (Russian text) - Popkova P. I. Dept. of Ped., Med. Inst., Leningrad - TERAP. ARKH. 1958, 30/8 (33-38) Graphs 4

The ESR of 104 patients was accurately photographed by automatic registration with the sedimentograph invented by V. A. Valdman. Eighty-seven patients had pleuropneumonia and bronchopneumonia, and 17 pulmonary cancer. The ESR was registered dynamically (369 sedimentograms in all). The contents of protein, albumin and α-, β- and γ-fractions of globulin were studied in parallels in the blood serum of 65 patients with pneumonia. There was displacement of sedimentogram curves to the left; at the height of pleuropneumonia, the maximum sedimentation speed occurred in the first 2 quarters of the first hour. Complications (lung abscesses, exudative pleurisy) increased the displacement. Decrease indicated a favourable course of the disease. Lesser changes of sedimentation curves were often expressed in patients with bronchopneumonia. Steadiness of pathological displacement was the main factor in the sedimentation curves in pulmonary cancer. There was no strict conformity between the ESR and the content of protein, albumin, α-, β- and γ-globulin fractions in the serum of blood of patients with pneumonia. Parallelism between the acceleration of ESR and increase of α-globulin in the blood serum with simultaneous decrease of the content of albumin is noted only at the height of infection, especially in the presence of complications. Continuous sedimentography with pneumonias helps to estimate the course of the disease, especially in case of complications or lingering illness. (VI, 15)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, P. I.: Master Med Sci (diss) -- "The dynamics of the sedimentation rate of erythrocytes and of blood proteins in pneumonia". Leningrad, 1959. 15 pp (Leningrad Pediatric Med Inst), 250 copies (KL, No 10, 1959, 129)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

KOSHTOYANTS, Kh.S.; SMIRNOVA, N.A.; POPKOVA, R.

Interaction of cerebral and abdominal ganglia in the snail Helix pomatia in regulaing the cardiac activity. Fiziol.zhur. 45 no.10: 1236-1241 O '59. (MIRA 13:2)

1. Kafedra fiziologii zhivotnykh Moskovskogo universiteta imeni M.V. Lomonosova.
(HEART physiol.)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

FOFKOVA, V. N.

Microbiol., Div. Lab. Botkin Hospital. (-1944-).

"Quick Diagnosis of Dysentery by the Method of Precipitation with Haptene."

Zhur. Mikrobiol., Epidemiol., i Immunobiol., No. 4-5, 1944.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

BERGOL'TS, V.M.; POPKOVA, V.N.

Pseudoleukosis in mice caused by bacteria of the Salmonella group. Lab. delo 7 no.5:33-35 My '61. (MIRA 14:5)

1. Gosudarstvennyy onkologicheskiy institut imeni P.A.Gertsena i Gorodskaya ordena Lenina klinicheskaya bol'nitsa imeni S.P.Botkina, Moskva.

(LEUKEMIA) (SALMONELLA)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, V.N.

SHARPENAK, A.E.; DOVZHIK, M.A.; POPKOVA, V.N.; VORONINA, L.M. (Moskva)

The efficacy of the N_5 nonspecific diet during reconvalescence from serious infectious diseases [with summary in English]. Vop.pit. 17 no.2:42-47 Mr-Ap '58. (MIRA 11:4)

1. Iz kafedry biokhimii (zav. - prof. A.E.Shapenak) Moskovskogo meditsinskogo stomatologicheskogo instituta i infektsionnogo otdeleniya (nauchnyy rukovoditel' prof. S.I.Ratner) Klinicheskoy bil'nitsy imeni S.P.Botkina.

(DIETS, therapeutic use
infect. dis., evaluation (Rus))
(COMMUNICABLE DISEASES,
infect. dis., ther., with nonspecific diet,
evaluation (Rus))

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

PROKOP'YEV, V., mekhanik (Bryansk); MALYSH, V., inzh. (Zaporozh'ye); TANEVSKIY, Ya., inzh. (Arkhangel'sk); GROSH, K. (Chelyabinsk); POPKOVA, Ye. (Chelyabinsk)

Suggested, created, introduced. Izobr.i rats. no.2:20-21 F '62. (MIRA 15:3)

(Technological innovations)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, Ye.G.; YURKOV, N.V.

Shortening the treatment time in dysentery patients with antibiotics and chemical preparations. Antibiotiki 8 no.9:839-841 S '63. (MIRA 17:11)

1. Kafedra infektsionnykh bolezney (zav. Ye.G. Popkova) Zaporozhskogo instituta usovershenstvovaniya vrachey i kafedra detskikh infektsiy (zav. G.V. Levina) Dnepropetrovskogo meditsinskogo instituta.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, Ye.G.; TOMASHPOL'SKIY, I.V.

Outbreak of aseptic meningitis caused by the ECHO-13 virus.
Sov.med. 26 no.1:76-79 Ja '63. (MIRA 16:4)

1. Iz kliniki infektsionnykh bolezney Zaporozhskogo instituta usovershenstvovaniya vrachey i 2-y Infektsionnoy bol'nitsy (glavnyy vrach O.R.Radionova).
(MENINGITIS) (ECHO VIRUSES)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, YE. G.

"Phagotherapy of Typhoid,"c Sov. Med., No. 7, 1949.

Mbr., Dnepropetrovsk Infection Clinic and Infection Hosp., -c1949-.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

РоРКОVА, Ye. G.

24 (2) SOV/55-58-6-12/31
AUTHORS: Kopsik, V. A., Minayeva, K. A.,
Voronkov, A. A., Solov'yev, A. P., Israilenko, L. M.,
Popkova, Ye. G., Petrova, G. V.

TITLE: Investigation of New Piezoelectric Crystals on Small-dimensioned Samples (Issledovaniye p'yezoelektricheskikh kristallov na malykh obraztsakh)

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1958, Nr 6, pp 97-98 (USSR)

ABSTRACT: In 1955 one of the authors succeeded in developing a simple method of investigating crystalline dielectrics with respect to their piezoelectricity (Ref 1) by the mechanical excitation of piezoelectric oscillations at low frequency near crystal resonance. The strength of the piezoelectric effect was determined from the ratio to a quartz standard. Part of the results of investigations carried out with 1200 crystalline dielectrics are given by two tables (table 1: 186 crystals with smaller piezoelectric effect than quartz; table 2: 111 crystals with a greater effect). It was further found in the course of the investigations that a fact of great importance for the theory of piezoelectrics is the rule governing the distribution of piezoelectric crystals according to space groups of symmetry which are favorable to the piezoelectric effect. This fact may be of use for the detection of new piezoelectrics among the dielectrics with known space symmetry. It was further found that the symmetry assumed in the case of any substances was too high. The authors thank A. V. Shubnikov for supervising work, and A. V. Kost, V. M. Bolkov and a number of other comrades for placing the crystal samples at their disposal. There are 2 tables and 9 references, 8 of which are Soviet.

Card 1/2

ASSOCIATION: Kafedra kristallofiziki (Chair for Crystal Physics)

SUBMITTED: June 11, 1958

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

POPKOVA, Ye. I.

ZALEVSKAYA, N.I.; POPKOVA, Ye.I.

Using local bleaching agents at the Far Eastern Power System Administration for the regeneration of insulating oils. Trudy DVFAN SSSR. Ser. khim. no.3:123-125 '58. (MIRA 11:5)
(Insulating oils)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

MALYSHEV, I.F.; POPKOVICH, A.V.; ROSHAL', G.Ya.; ZHELEZNIKOV, F.G.; LYSOV, A.V.; TSEPAKIN, S.G.; SOLNYSHKOV, A.I.; BOYTSOV, A.S.; ASTAKHOV, Ye.Ya.; MIRONOV, B.V.; LAPITSKIY, Yu.Ya.; GATALIN, V.A.; KHOROSHKOV, V.S.

Electrostatic accelerator-injector in a proton synchrotron. Prib. i tekh. eksp. 7 no.4:37-45 Jl-Ag '62. (MIRA 16:4)

1. Nauchno-issledovatel'skiy institut elektrofizicheskoy apparatury Gosudarstvennogo komiteta po ispol'zovaniyu atomnoy energii SSSR i Institut teoreticheskoy i eksperimental'noy fiziki Gosudarstvennogo komiteta po ispol'zovaniyu atomnoy energii SSSR.
(Particle accelerators) (Synchrotron)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

MALYSHEV, I.F.; POPKOVICH, A.V.; MIKHELIS, Ya.L.; MARTYUGOV, G.M.; ARTEMOV, A.D.; KARPENKO, N.M.

Vacuum system of the 7 bev. proton synchrotron. Prib. i tekh. eksp. 7 no.4:46-51 Jl-Ag '62. (MIRA 16:4)

1. Nauchno-issledovatel'skiy institut elektrofizicheskoy apparatury Gosudarstvennogo komiteta po ispol'zovaniyu atomnoy energii SSSR.
(Vacuum apparatus) (Synchrotron)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

GASHEV, M.A.; GUSTOV, G.K.; D'YACHENKO, K.K.; KOMAR, Ye.G.; MALYSHEV, I.F.; MONOSZON, N.A.; POPKOVICH, A.V.; RATNIKOV, B.K.; ROZHDESTVENSKIY, B.V.; RUMYANTSEV, N.N.; SAKSAGANSKIY, G.L.; SPEVAKOVA, F.M.; STOLOV, A.M.; STREL'TSOV, N.S.; YAVNO, A.Kh.

Principal mechanical characteristics of the experimental thermonuclear plant "Tokamak-3." Atom. energ. 17 no.4:287-294 O '64. (MIRA 17:10)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342220020-5

ACCESSION NR: AT4035117 S/3092/63/000/001/0193/0203

AUTHORS: Maly*shev, I. F.; Popkovich, A. V.; Fefelov, P. A.; Sokolov, Yu. A.

TITLE: Vacuum chambers for strong focusing synchrotrons

SOURCE: Moscow. Nauchno-issledovatel'skiy institut elektrofizicheskoy apparatury*. Elektrofizicheskaya apparatura; sbornik statey, no. 1, 1963, 193-203

TOPIC TAGS: cyclic accelerator, electron accelerator, proton accelerator, electron synchrotron, proton synchrotron, strong focusing accelerator, vacuum equipment

ABSTRACT: Some designs of vacuum chambers for strong-focusing accelerators, developed in recent years in NIIEFA, are described. The description is preceded by an exposition of the requirements imposed on the design of accelerator vacuum chambers with respect to the

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uniformity of the field, injection energy, injection geometry, desired intensity, the chamber aperture, the required vacuum, the materials, and other factors. This is followed by a description of the 7-BeV proton synchrotron and the 6-BeV proton synchrotron vacuum chamber and their individual parts. The 7-BeV proton synchrotron vacuum chamber consists of a ring about 80 mm in diameter having 112 curvilinear sections placed in the gaps of the magnet blocks, and 112 straight-line sections between the blocks. The main elements of the ring are the curved sections, the majority of which constitute thin corrugated tubes of elliptical cross section with flanges welded on the end. Each tube is approximately 2 meters long, has inside dimensions 84 x 114 mm (axes of the ellipse), and is made of 1Kh18N9T stainless steel 3 mm thick, the corrugations being 3 mm high at a spacing of 7 mm. The 6-BeV electron synchrotron chamber is a ring approximately 70 meters in diameter, consisting of 48 curvilinear sections and 48 straight-line sections. Each curvilinear section (radius of curvature ~25 meters) is approximately

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AUTHOR: Glazov, A. A.; Denisov, Yu. N.; Dmitriyevskiy, V. P.; Zamolodchikov, B.I.; Zaplatin, N.L.; Kol'ga, V. V.; Komochkov, M. M.; Kropin, A. A.; Dzhelepov, V. P.; Gashev, M. A.; Malyshev, I. F.; Monoszon, N. A.; Popkovich, A. V. 10

TITLE: Relativistic 700-Mev proton cyclotron 39 B+1 19

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TOPIC TAGS: proton accelerator, relativistic particle

ABSTRACT: Current theoretical concepts and experimental data conclusively show that to understand the microcosm further it is necessary to increase the beam intensity of accelerators by a factor of 10^3 and produce accelerators with energies up to thousands of Bev's. For the past 5-6 years constant gradient accelerators (500-900 Mev cyclotrons) have appeared to be the best way to produce particles with energies up to 1 Bev (1 Gev) with beam currents of the order of 1 milliampere instead of 1 microampere (as found in synchrocyclotrons). The present report describes the design for a 700-Mev proton cyclotron developed by the Laboratory of Nuclear Prob-

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